

## **1 AUTHORITY, PURPOSES AND INTENT**

### **1-A AUTHORITY AND ENACTMENT**

This Ordinance, to be cited as the Zoning Ordinance of Clarke County, is hereby ordained, enacted and published by the Board of Supervisors of Clarke County, Virginia, pursuant to the provisions of Title 15.2, Chapter 22, Article 7, Code of Virginia, 1950, and amendments thereto.

### **1-B PURPOSES AND INTENT**

- 1-B-1 This Ordinance, insofar as is practicable, is intended to be in accord with and to implement the Comprehensive Plan of Clarke County adopted pursuant to the provisions of Title 15.2, Chapter 22, Article 3, Code of Virginia, 1950, as amended, and has the purposes and intent set forth in Title 15.2, Chapter 22, Article 7.
- 1-B-2 This Ordinance is for the general purpose of promoting the health, safety or general welfare of the public and of accomplishing the objectives of Section 15.2-2200 and Section 15.2-2283 of the Virginia Code. To these ends, this Ordinance is designed:
- 1-B-2-a To provide for adequate light, air, convenience of access, and safety from fire, flood and other dangers;
- 1-B-2-b To reduce or prevent congestion in the public streets and roads;
- 1-B-2-c To facilitate the creation of a convenient, attractive and harmonious community;
- 1-B-2-d To expedite the provision of adequate police and fire protection, disaster evacuation, civil defense, transportation, water, sewerage, flood protection, schools, parks, forests, playgrounds, recreational facilities, airports, and other public requirements;
- 1-B-2-e To protect against destruction of, or encroachment upon, historic areas;
- 1-B-2-f To protect against one or more of the following: Overcrowding of land, undue density of population in relation to the community facilities existing or available, obstruction of light and air, danger and congestion in travel and transportation, or loss of life, health, or property from fire, flood, panic or other dangers;
- 1-B-2-g To encourage economic development activities that provide desirable employment and enlarge the tax base; and
- 1-B-2-h To protect and stabilize the rural agricultural, forestall and open space areas that are essential to maintaining the County's heritage, character and economy.

within 100 feet of the perimeter of the area to be cleared for the monopole must be retained, unless specifically approved for removal on the site plan.

**6-H-12-c**

The monopole shall have the minimum diameter necessary to support the proposed attachments. Attachments to the monopole shall be the same color as the monopole. Attachments to the monopole shall be flush mounted and have the minimum dimensions and protrusion for the monopole based on the best available technology or shall be enclosed within the pole. A lightening rod may be mounted as an extension of a monopole and shall be included in determining the height of the monopole.

**6-H-12-d**

The area to be cleared for the compound containing the monopole and support facilities shall be the minimum necessary to accommodate the facilities and shall not exceed 2,500 square feet. The driveways accessing the compound shall be gated.

**6-H-12-e**

A monopole shall be set back a distance equal to at least its height from any property line. A monopole shall be set back a distance equal to at least twice its height from any public right of way (except as noted below). A monopole shall not be located on and shall be set back a distance equal to at least four times its height from:

1. parcels comprising the Appalachian National Scenic Trail corridor,
2. parcels under permanent open space easement,
3. parcels in the Clarke County Historic Overlay District,
4. the State Arboretum of Virginia portion of the University of Virginia's Blandy Farm,
5. state designated Scenic Byways,
6. the Shenandoah River (a state designated scenic river), and
7. State Parks and Wildlife Management Areas.

**6-H-13**

**Erosion and Sediment Control**

An erosion and sediment control plan for the entire disturbed area of a development shall be prepared in accordance with the Clarke County Erosion and Sediment Control Ordinance, and must receive the approval of the Lord Fairfax Soil & Water Conservation District Board.

**6-H-14**

**Sinkhole and Karst Features (2/17/04)**

**6-H-14-a**

**Purpose and Intent**

This section is to establish review procedures, use limitations, design standards, and performance standards applicable to land development activities that encompass or affect sinkholes or other karst features. The intent of this section is to protect the public health, safety and welfare by requiring the development and use of karst areas to proceed in a manner



that promotes safe and appropriate construction and storm water management.

6-H-14-b

#### Definitions

1. Geotechnical Engineer (GE): a Virginia Registered Professional Engineer engaged in the practice of geotechnical engineering or a Virginia-Registered Professional Geologist who is engaged in the practice of engineering geology.
2. Karst Feature: Karst topography is a landscape created by groundwater dissolving sedimentary rock such as limestone. Karst features include sinkholes, fissures enlarged by dissolution, and caves.

6-H-14-c

#### Site Review:

Investigation by Geotechnical Engineer

Whenever an application is filed for development, the applicant will hire a Geotechnical Engineer (GE) to undertake an inspection of the subject

area.

The GE shall review available geologic and engineering data and air-photographs relevant to the site and shall make on-site observations, photographs, and measurements as appropriate. The GE shall provide written summary of the initial findings along with a recommendation to perform Fracture Trace Analysis, Electrical Resistivity, Cone Sounding, Core Samples, Microgravity, and/or other geophysical or intrusive studies as appropriate to determine if the action requested may have a negative impact. The examination for karst features by the engineer shall take

place

prior to any public hearing process applicable to the parcel in question. The engineer will report to the zoning administrator any findings as to whether there may be significant karst features that apply to the site.

#### 1. No Evidence of Karst Features

If the engineer finds that the site has no evidence of karst features, they shall so indicate in a written report provided to the reviewing body.

#### 2. Evidence of Karst Features

In cases where the engineer finds evidence that karst features do exist, and which would be required within a 100 foot radius for all locations on the property where karst features were identified and along any linear trend of at least three or more features. For sinkholes the 100 foot radius shall be measured from the discernable edge. At the conclusion of the tests the applicant shall submit a karst review plan to the Zoning Administrator and follow specific development procedures.

#### 3. The presence of karst features on the site which are not impacted. At the discretion of the Zoning Administrator, the karst plan may



be simplified if the environmental constraint found to be present on the site is not impacted by the proposed site development.

#### 6-H-14-d

##### Karst Plan

A karst plan shall be developed for the property identified as having evidence of karst features (i.e., sites upon which sinkholes are fully or partially located and/or which drain to sinkholes). The burden of proof for establishing that there will be no significant impacts shall rest with the applicant. A karst plan shall include the following:

1. An engineering audit that identifies and maps karst features and the limitations that such features impose on site development. The audit shall include:
  - a. The physical location and limits of the area of the sinkhole depression as determined by field survey, the "Soil Survey of Clarke County" (1982), or the "Map of Selected Hydrogeologic Components of Clarke County, Virginia" (1990), or other reliable sources as may be approved by the Administrator;
  - b. locations of other karst features (fissures enlarged by dissolution and caves);
  - c. topographic contours at maximum intervals of two feet, and spot elevations sufficient to determine low points and discernable edges; and
  - d. setback distances of 25 feet and 100 feet from the discernable edge of each feature.
2. For structures proposed between 25 and 100 feet of the discernable edge of sinkholes or other karst features, engineering that ensures structural stability.

*2011  
Admin.  
approved  
10/16/11*

#### 6-H-14-e

##### Requirements and Restrictions

1. As identified in Section 6-H-14-d, no construction or land disturbance shall occur within a minimum buffer distance of 25 feet from the discernable edge of a sinkhole or other karst feature. Vegetation in the buffer area shall not be altered from predevelopment conditions. While vegetation should not be removed so as to disturb the soil, invasive species identified by the Virginia Department of Conservation and Recreation or dead plant material may be removed with the approval of the Zoning Administrator. Fertilizers, herbicides, and pesticides shall not be applied within the buffer area.
2. No construction shall take place between 25 and 100 feet of the discernable edge of a sinkhole or other karst feature unless a geological and geophysical survey (as described in Section 6-H-14-d) indicates that such construction or earth disturbance is appropriate.
3. Sinkholes or karst features identified during construction shall be



*sinkhole  
remediation*

*good  
guidance*

mitigated as described in the Virginia Department of Transportation's Location and Design Division Instructional and Informational Memorandum 228 (IIM-LD- 228), or other applicable standard as recommended by a GE.

4. Flow of surface water to a sinkhole should not be substantially altered from predevelopment conditions unless the mitigation option (Section 6-H-14-e-2) is elected. Stormwater discharge into a karst feature shall not be increased over its predevelopment rate.
5. Stormwater runoff from paved areas or structures shall not directly enter a sinkhole. Stormwater facilities shall be designed to route runoff through vegetative filters or other filtration measures before it enters a sinkhole.
6. Stormwater basins in karst areas shall be lined with either impermeable soil or a synthetic membrane to prevent sudden loss of the contents of the basin into the groundwater due to induced collapse. Where native materials are deemed adequate for the purpose, the GE shall verify conditions, establish the required parameters, and monitor placement.
7. Construction plans shall contain a narrative describing stormwater drainage design, retention, erosion control, and where appropriate, stormwater quality mitigation measures, as these provisions relate to karst features.
8. Underground utilities located within 100 feet of karst features shall be laid out so that they do not intersect those features. Along all such underground utilities, a dike of clay or other suitable material shall be constructed across the trench of the transmission lines and pipelines at intervals of 20 feet or less, or as directed by a GE.
9. For any tests requiring boreholes, such as air track drilling, the boreholes must be grouted upon completion. Grouting should be done with a mixture of 50% bentonite and 50% portland cement.
10. If air track drilling is used to determine the depth of overburden and continuity of bedrock, then these operations must be monitored full time by a GE to confirm the findings of the driller.
11. Geotechnical studies shall be conducted at each proposed structure site before issuance of a building permit to determine the existence of karst features. If karst features are found, remediation shall be done to protect the healthy, safety, and welfare of occupants of the structure.
12. Storage tanks shall have impervious secondary containment. Underground fuel storage tanks shall have interstitial monitoring of tanks and piping systems.
13. Where applicable, the following Consumer Disclosure Statement that provides information on what review occurred and what was discovered shall be included in the Deed of Dedication:  
*This property is located in an area identified as having karst features. Karst features are created by groundwater dissolving*



*sedimentary rock such as limestone. Features include sinkholes, fissures enlarged by dissolution, and caves. Geologic tests were conducted and one or more of these features were identified on this property. Karst features are unstable and collapse may occur. Measures have been taken to ensure structural stability in this area; however, karst areas are dynamic and geologic changes may cause future structural instability. Fertilizers, herbicides, and pesticides shall not be applied within designated buffer areas.*

14. Measures to permanently protect karst features shall be identified on the site plan. These measures may include fencing and/or signage.

**6-H-15**

**Miscellaneous Design Criteria**

All other criteria and specifications shall be in accordance with County standards, where provided. Where County standards are not provided, the Administrative Body shall provide those standards or shall rule upon the standards proposed by the developer.

**6-I CONSTRUCTION AND BONDING**

- 6-I-1 No site improvement activities may occur unless all of the following have been met:
  - 6-I-1-a Approval of final site plan and erosion and sediment control plan.
  - 6-I-1-b Approval of erosion and sediment control bond, and installation of erosion and sediment control measures.
  - 6-I-1-c Posting of construction bond.
- 6-I-2 All improvements required by this Section shall be installed at the cost of the developer, except where cost sharing or reimbursement agreements between the County and the applicant are appropriate, the same to be recognized by formal written approval prior to site plan approval.
- 6-I-3 The approval of a site plan and/or the installation of improvements shall not obligate the County to accept the improvements for maintenance, repair, or operation. Acceptance shall be subject to County and/or State regulations, where applicable, and dependent on the satisfactory nature of the improvements.
- 6-I-4 The applicant is required to post a bond or other acceptable surety covering the construction and satisfactory completion of all required on-site and off-site public improvements.